

DATA REQUEST #19
SOIL & WATER RESOURCES

BACKGROUND

Potential impacts from erosion and siltation can result from the alteration of an area's natural drainage pattern. These impacts will be mitigated at the Niland Gas Turbine site by routing all on-site and off-site stormwater into three detention basins. A large basin, designed to capture all the stormwater which originates onsite in a 24-hour, 100-year storm event, will detain onsite flows and allow them to evaporate. Two smaller basins will collect offsite stormwater, hold it long enough to lessen peak flow velocity, and discharge it to natural channels or allow it to evaporate. These two smaller basins are not designed for any particular storm event. Figure 2.2-6 shows the preliminary grading plan and pre- and post-construction drainage patterns for the site. Staff's understanding is that stormwater detention basins have limited effectiveness for trapping sediment and stormwater during large rain events. Basins must be carefully designed and maintained to prevent overflow and sediment buildup, and must be configured to discharge water at a controlled rate that will not cause downstream erosion.

DATA REQUEST

19. Identify the size and duration of the largest storm that the off-site stormwater basins can fully capture.

DATA RESPONSE

19. Calculations based on the watershed drainage area upstream of the Project Site that could contribute surface flow to the Project (approximately 131 acres, see attachment SW-2, Watershed Area), and using a runoff coefficient of 0.3 for unimproved areas (see attachment SW-3, Runoff Coefficients), the storm event that can be captured in the two detention ponds and the interceptor ditches ($V=200,000 \text{ CF}$), is equivalent to 1.4 inches of rain. Using the table from the National Oceanic and Atmospheric Administration (NOAA) Atlas for Niland (see attachment SW-1, NOAA Table) this would equate to a range of size and duration of events. For example, the basins would fully capture the 1000-year, 5-minute event; or, the 100-year, 15-minute event; or, the 5-year, 12-hour event.

Note that for the Imperial County area, the total average rainfall by month has never exceeded 0.44 inches of rain since the Period of Record began in 1948 (see attachment SW-4, Imperial, CA Climate Summary). Therefore, the detention basins are sized to accommodate three times the highest monthly average, and as such the offsite stormwater detention basins will fully capture all average or typical storm events.